

1678. Triclosan, triclocarban, metabolism and microbiome: a randomized, cross-over study

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Background. The human microbiome has been implicated in the development and maintenance of obesity. We hypothesized that triclosan and triclocarban(TCS), microbicides found in many household and personal care products (HPCP) and present in 75% of US human urine samples, play a role in altering microbiota, metabolic function and weight.

Methods. In a double-blind, randomized, cross-over study participants were given TCS or non-TCS containing toothpaste, dish and hand soap for 4 months then switched arms. Of 16 subjects enrolled, 13 completed the trial. Blood, stool,

skin swabs, gingival plaque, saliva, urine samples and weights were obtained at baseline and at regular intervals throughout each period. Bloods were analyzed for metabolic and endocrine markers and urines for TCS. Illumina sequencing of stool skin, skin, saliva and gingival plaque is underway. All statistics were performed in R.

Results. In the TCS arm, TC levels were higher (median 25,555 pg/ul) than in the non-TCS arm (median 218 pg/ul) ($p < 0.001$). No significant differences were found in testosterone, T4 or TSH levels or in 17 adipocytokines on the obesity panel. Six subjects gained more than 0.6% of body weight (the highest quartile) in the TCS arm but lost or stayed at the same weight in the non-TCS arm; the reverse (weight gain in non-TCS but not in TCS arm) was seen in only one person (OR = 6, $p = 0.13$, McNemar test). Microbiota analysis of saliva, skin and stool samples is pending.

Conclusion. In this pilot study we found that individuals were somewhat more likely to gain weight while using TCS-HPCP than when not using TCS-HPCP; this was not explained by hormonal or adipocytokine changes. Sequencing studies will examine whether TCS affects microbial communities.

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